

## EAST Search History

| Ref # | Hits | Search Query | DBs      | Default Operator | Plurals | Time Stamp       |
|-------|------|--------------|----------|------------------|---------|------------------|
| S1    | 2    | "731256".ap. | US-PGPUB | ADJ              | ON      | 2007/05/08 11:26 |

# EAST Search History

|   |     |  |                    |     |    |                  |
|---|-----|--|--------------------|-----|----|------------------|
| S2  | 234 | (<br>"2015864"<br> "2593146"<br> "20020149656"<br> "20030082237"<br> "20030099718"<br> "20030203991"<br> "20040120904"<br> "3266973"<br> "3338992"<br> "3381688"<br> "3494821"<br> "3502538"<br> "3502763"<br> "3507269"<br> "3542615"<br> "3615478"<br> "3692618"<br> "3794497"<br> "3802817"<br> "3849241"<br> "3919437"<br> "3960494"<br> "3971665"<br> "4006030"<br> "4041203"<br> "4078029"<br> "4100324"<br> "4101638"<br> "4172781"<br> "4297233"<br> "4313820"<br> "4340563"<br> "4375448"<br> "4407960"<br> "4467012"<br> "4469746"<br> "4488969"<br> "4494278"<br> "4494629"<br> "4517308"<br> "4522203"<br> "4525410"<br> "4575556"<br> "4604313"<br> "4640810"<br> "4643801"<br> "4655757"<br> "4701218"<br> "4715983"<br> "4725415"<br> "4734324"<br> "4775585"<br> "4780448"<br> "4781858"<br> "4783220"<br> "4798603"<br> "4802473"<br> "4818464"<br> "4823404"<br> "4823803"<br> "4904304"<br> "4969457"<br> "4978615"<br> "4988505"<br> "5000746"<br> "5020533"<br> "5057302"<br> "5064473"<br> "5100581"<br> "5100702"<br> "5108739"<br> "5122418"<br> "5133803"<br> "5145518"<br> "5145727"<br> "5169706"<br> "5178931"<br> "5183656"<br> "5188885"<br> "5196177"<br> "5204111"<br> "5204429"<br> "5209998"<br> "5220000"<br> "5221497"<br> "5225374"<br> "5230953"<br> "5238518"<br> "5245117"<br> "5266289"<br> "5284703"<br> "5292868"<br> "5294717"<br> "5300365"<br> "5314855"<br> "5322061"<br> "5332432"<br> "5338713"<br> "5342876"<br> "5350624"<br> "5366947"<br> "5382400"<br> "5383450"<br> "5397667"<br> "5407442"<br> "5407600"<br> "5420090"<br> "5427844"<br> "5429628"<br> "5451450"<br> "5458864"<br> "5472775"<br> "5480636"<br> "5486356"<br> "5487938"<br> "5488126"<br> "5527171"<br> "5538548"<br> "5539124"<br> "5540916"<br> "5547607"<br> "5553608"<br> "5554775"<br> "5580655"<br> "5583219"<br> "5591797"<br> "5597512"<br> "5616315"<br> "5661198"<br> "5663224"<br> "5679138"<br> "5679724"<br> "5695868"<br> "5733272"<br> "5747003"<br> "5773227"<br> "5795985"<br> "5813398"<br> "5817300"<br> "5837352"<br> "5843509"<br> "5855788"<br> "5858503"<br> "5861144"<br> "5871872"<br> "5874067"<br> "5880176"<br> "5880309"<br> "5882638"<br> "5885599"<br> "5897541"<br> "5902226"<br> "5905101"<br> "5916596"<br> "5948398"<br> "5948483"<br> "5962566"<br> "5972389"<br> "5985229"<br> "5989510"<br> "5989515"<br> "5998222"<br> "6004625"<br> "6007592"<br> "6007795"<br> "6024786"<br> "6045900"<br> "6047413"<br> "6060410"<br> "6073771"<br> "6075179"<br> "6096299"<br> "6111163"<br> "6172173"<br> "6177608"<br> "6190814"<br> "6193844"<br> "6200555"<br> "6210625"<br> "6225524"<br> "6238767"<br> "6254894"<br> "6264615"<br> "6277346"<br> "6277489"<br> "6277772"<br> "6291535"<br> "6294222"<br> "6299867"<br> "6309736"<br> "6315864"<br> "6334988"<br> "6344218"<br> "6344272"<br> "6358537"<br> "6358909"<br> "6361780"<br> "6369700"<br> "6376741"<br> "6387405"<br> | US-PGPUB;<br>USPAT | ADJ | ON | 2007/05/08 11:26 |
| 5/8/2007 4:18:20 PM<br>C:\Documents and Settings\Nschuenzler\My Documents\FAA\Workspaces\10731256 triggerable delivery system.wsp |     |  |                    |     |    |                  |

## EAST Search History

|     |      |   |   |     |     |                  |
|-----|------|---|---|-----|-----|------------------|
| S3  | 1    | ("5767115").PN.   | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 11:27 |
| S4  | 1    | ("6007795").PN.   | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 11:27 |
| S5  | 1    | ("6537665").PN.   | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 11:27 |
| S6  | 1    | ("3,252,917").PN.                                       | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 11:27 |
| S7  | 1    | ("7141518").PN.   | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 11:27 |
| S8  | 2    | ("3007878").PN.   | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 11:27 |
| S9  | 2    | ("2,574,902").PN.                                       | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 11:28 |
| S10 | 1    | ("5631365").PN.   | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 11:28 |
| S11 | 1    | "20030099718"   | US-PGPUB  | ADJ | ON  | 2007/05/08 11:28 |
| S12 | 1    | "20060222670"   | US-PGPUB  | ADJ | ON  | 2007/05/08 11:29 |
| S13 | 3    | "20030082237"   | US-PGPUB  | ADJ | ON  | 2007/05/08 11:29 |
| S14 | 3    | "2004060378"  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |
| S15 | 308  | alumina coated silica                                   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |
| S16 | 179  | (alumina coated silica) same (particle or nanoparticle) | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |
| S17 | 9241 | silica with alumina with (coat or coated or coating)    | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |

## EAST Search History

|     |        |  |   |     |    |                  |
|-----|--------|--|---|-----|----|------------------|
| S18 | 523    | S17 same (stability or stable)   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2007/05/08 11:29 |
| S19 | 9241   | silica with alumina with (coat or coated or coating)   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2007/05/08 11:29 |
| S20 | 3404   | S19 same (particle or particulate or nanoparticle or nanoparticulate or microparticle or microparticulate) | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2007/05/08 11:29 |
| S21 | 465544 | alumina or aluminum oxide  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2007/05/08 11:29 |
| S22 | 64442  | S21 with (particle or nanoparticle or microparticle)   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2007/05/08 11:29 |
| S23 | 732727 | silica or silicon dioxide  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2007/05/08 11:29 |
| S24 | 102673 | S23 with (particle or nanoparticle or microparticle)   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2007/05/08 11:29 |
| S25 | 3143   | S24 same (S21 with (coat or coating or coated))  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2007/05/08 11:29 |

## EAST Search History

|     |      |  |   |     |     |                  |
|-----|------|--|---|-----|-----|------------------|
| S26 | 2003 | snowtex  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |
| S27 | 25   | (S16).clm.   | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |
| S28 | 15   | S16 and (pharmaceutical or drug)                                       | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |
| S29 | 42   | S20 and drug delivery  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |
| S30 | 41   | S25 and drug delivery  | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |
| S31 | 154  | silica same alumina same (coat or coated or coating) same nanoparticle | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 11:29 |
| S32 | 179  | (alumina coated silica) same (particle or nanoparticle)                | US-PGPUB;<br>USPAT;<br>USOCR;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON  | 2007/05/08 12:08 |
| S33 | 1    | "20030022783"  | US-PGPUB  | ADJ | ON  | 2007/05/08 15:41 |
| S34 | 1    | ("5611829").PN.  | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 16:00 |
| S35 | 1    | ("4451388").PN.  | USPAT;<br>EPO; JPO  | OR  | OFF | 2007/05/08 16:00 |

# STN SEARCH HISTORY

=> d his

(FILE 'HOME' ENTERED AT 15:02:23 ON 08 MAY 2007)

FILE 'CAPLUS' ENTERED AT 15:02:33 ON 08 MAY 2007

E ALUMINA+ALL/CT

L1 355322 S ("ALUMINA" OR "ALUMINUM OXIDE" OR "ALUMINUM OXIDE (AL2O3)")

E SILICA+ALL/CT

L2 563120 S ("SILICA" OR "AEROSIL" OR "SILICON DIOXIDE" OR "SILICON OXIDE

L3 92893 S L1 AND L2

L4 25046 S L3 AND (COAT OR COATING OR LAYER OR LAYERING)

L5 50 S ALUMINA COATED SILICA

L5 ANSWER 1 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:32382 CAPLUS  
DOCUMENT NUMBER: 144:92454  
TITLE: Silica sol and its production method for grinding  
INVENTOR(S): Nishida, Hiroyasu; Wakamiya, Yoshinori; Taguma,  
Yuichiro  
PATENT ASSIGNEE(S): Catalysts and Chemicals Industries Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| -----         | ---- | -----    | -----           | -----    |
| JP 2006012969 | A    | 20060112 | JP 2004-184947  | 20040623 |
|               |      |          | JP 2004-184947  | 20040623 |

PRIORITY APPLN. INFO.:  
AB Silica sol for grinding comprises 5-50 weight% (as solids) spherical SiO<sub>2</sub> particulate, which has been surface treated with SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub>, and an aqueous dispersion medium, wherein (a) the average particle diameter of the spherical SiO<sub>2</sub> particulate is 20-110 nm, (b) number of coarse particles having particle diameter of ≥800 nm is ≤3000 particles/mL per the spherical SiO<sub>2</sub> particulate concentration of 1 weight%, (c) the pH is 1-4 or 8-11, and (d) inorg. anion content is ≤20 ppm. The production method includes adding simultaneously an acidic silica solution or a silicate aqueous solution and a Na aluminate aqueous solution to an aqueous silica sol to obtain SiO-alumina coated silica sol, cation exchange treating and/or anion exchange treating the silica sol, adjusting the pH to 1-4 or 8-11, and centrifugally separating the silica sol to recover the supernatant.

L5 ANSWER 2 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:953531 CAPLUS  
DOCUMENT NUMBER: 143:232115  
TITLE: Conformal coating of nanoparticles using atomic layer deposition in a fluidized bed reactor  
AUTHOR(S): Hakim, Luis F.; Portman, Julie L.; Casper, Michelle D.; Weimer, Alan W.  
CORPORATE SOURCE: Department of Chemical and Biological Engineering, Engineering Center, University of Colorado, Boulder, CO, 80309, USA  
SOURCE: AIChE Annual Meeting, Conference Proceedings, Austin, TX, United States, Nov. 7-12, 2004 (2004), 337AU/1-337AU/21. American Institute of Chemical Engineers: New York, N. Y.  
CODEN: 69GSKT; ISBN: 0-8169-0965-2  
DOCUMENT TYPE: Conference; (computer optical disk)  
LANGUAGE: English

AB The fluidization behavior of a variety of ultrafine powders was studied at increased and reduced pressures. Characteristics of stationary and fluidizing agglomerates of nanoparticles were described as well as the dynamic behavior of agglomerates during fluidization. The effect of different particle interactions such as adhesion, liquid bridging, and electrostatic on various fluidization parameters was studied. When interparticle forces are reduced, min. fluidization velocity (U<sub>mf</sub>) and agglomerate size decrease and bed expansion increases. The fluidization characteristics were found to be mainly controlled by characteristics of agglomerates such as size and d. Modification in the fluidization behavior can be obtained by altering the surface chemical of ultrafine particles. Coated particles via atomic layer deposition (ALD) showed lower min. fluidization velocity due to weaker interparticle attractions. The application of mech. vibration to the fluidized bed reduces the

agglomerate size and improves the fluidization quality.  
REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2005:729835 CAPLUS  
DOCUMENT NUMBER: 143:391615  
TITLE: Novel Amorphous Functional Materials for Trapping  
Nitrosamines  
AUTHOR(S): Cao, Yi; Shi, Li Ying; Zhou, Chun Fang; Yun, Zhi Yu;  
Wang, Ying; Zhu, Jian Hua  
CORPORATE SOURCE: Department of Chemistry, Nanjing University, Nanjing,  
210093, Peop. Rep. China  
SOURCE: Environmental Science and Technology (2005), 39(18),  
7254-7259  
CODEN: ESTHAG; ISSN: 0013-936X  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Novel amorphous functional materials are designed to modify amorphous  
silica with alumina. They are first presented as efficient adsorbents to  
trap both volatile nitrosamines and bulky tobacco-specific nitrosamines in  
the environment. Selective adsorption, temperature-programmed surface reaction  
(TPSR), and Fourier-transform IR methods are employed to study the impact  
of alumina modification on the ability of silica to adsorb and  
catalytically degrade nitrosamines. Due to the special interaction  
between the N-NO group of nitrosamines and the aluminum ion in the  
composite, nitrosamines can be very easily trapped by the composite.  
Moreover, this cost-efficient material first shows a remarkable adsorptive  
capability and catalytic activity in reduction of NNN (N-nitrososornicotine)  
in the liquid phase. The new concept of designing a multifunctional trap  
for carcinogenic pollutants, which combines the amorphous silica's pore  
structure with the specific adsorbing/catalyzing features of metal ions,  
proves feasible.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2005:346672 CAPLUS  
DOCUMENT NUMBER: 142:397836  
TITLE: Reducing odor using metal-modified particles with  
chelating agents  
INVENTOR(S): Mcgrath, Kevin P.; Do, Bao Trong; MacDonald, John  
Gavin  
PATENT ASSIGNEE(S): Kimberly-Clark Worldwide, Inc., USA  
SOURCE: U.S. Pat. Appl. Publ., 13 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| US 2005084464 | A1   | 20050421 | US 2003-686939  | 20031016 |
|               |      |          | US 2003-686939  | 20031016 |

PRIORITY APPLN. INFO.:

AB A method for reducing odor is provided. In one embodiment, the method  
comprises forming a coordination complex between particles having a pos.  
zeta potential and a transition metal. The method further comprises  
contacting the coordination complex with an odorous compound, the transition  
metal providing one or more active sites for capturing the odorous compound  
For example, in one embodiment, the particles are formed from  
alumina-coated silica. In addition, the  
coordination complex may be formed using a bifunctional chelating agent.



For example, paper towel containing the absorbent composition of Snowtex AK (colloidal silica nanoparticles coated with alumina), dyes and copper chloride was able to absorb chemical odor effectively.

L5 ANSWER 5 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:999643 CAPLUS  
DOCUMENT NUMBER: 141:414622  
TITLE: Chemical mechanical polishing (CMP) compositions for copper with improved materials selectivity  
INVENTOR(S): Darsillo, Michael; Wrschka, Peter; Boggs, Karl  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S. Pat. Appl. Publ., 15 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO.  | DATE       |
|---------------|------|----------|------------------|------------|
| US 2004229461 | A1   | 20041118 | US 2003-436381   | 20030512   |
| CN 1787895    | A    | 20060614 | CN 2004-80012930 | 20040510   |
|               |      |          | US 2003-436381   | A 20030512 |

PRIORITY APPLN. INFO.:

AB A CMP composition containing a rheol. agent, e.g., in combination with oxidizing

agent, chelating agent, corrosion inhibitor, abrasive, and solvent. Such CMP composition advantageously increases the materials selectivity in the CMP process and is useful for polishing surfaces of copper conductors on semiconductor substrates, without the occurrence of dishing or other adverse planarization deficiencies in the polished copper. In one embodiment, the polishing composition contains 0.1 weight% of hydroxypropylcellulose with 1,000,000 MW, 4 weight% of glycine, 0.8 weight% aminotetrazole, 5 weight% hydrogen peroxide, and 1 weight% of Nyacol DP6243 alumina coated silica composite abrasive. The copper polish rate remained the same as without the addition of the rheol. agent at approx. 4000 Å/min. However, tantalum (liner) polishing rate decreased from 40 Å/min to 30 Å/min, increasing selectivity from 100:1 to 133:1.

L5 ANSWER 6 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:664523 CAPLUS  
DOCUMENT NUMBER: 141:338318  
TITLE: Heteroaggregation, reptization and stability in mixtures of oppositely charged colloids  
AUTHOR(S): Rasa, M.; Philipse, A. P.; Meeldijk, J. D.  
CORPORATE SOURCE: Van't Hoff Laboratory for Physical and Colloid Chemistry, Debye Institute, Utrecht University, Utrecht, 3584 CH, Neth.  
SOURCE: Journal of Colloid and Interface Science (2004), 278(1), 115-125  
CODEN: JCISA5; ISSN: 0021-9797

PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB We report a study of mixts. of initially oppositely charged particles with similar size. Dispersions of silica spheres (neg. charged) and alumina-coated silica spheres (pos. charged) at low ionic strength, mixed at various volume ratios, exhibited a surprising stability up to compns. of 50% neg. colloids as well as spontaneous reptization of particles from the early-stage formed aggregates. The other mixts. were found to contain large heteroaggregates, which were imaged using cryogenic electron microscopy. Electrophoretic mobility, elec. conductivity, static and dynamic light scattering

and sedimentation were studied as a function of volume fraction of the mixed dispersions to investigate particle interactions and elucidate the reptization phenomenon.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:513359 CAPLUS

DOCUMENT NUMBER: 141:55165

TITLE: Polymer nucleating agents

INVENTOR(S): Xu, Wen-Qing; Grabiec, Damon; Nehring, Robert J.

PATENT ASSIGNEE(S): Nyacol Nano Technologies, Inc., USA

SOURCE: U.S. Pat. Appl. Publ., 8 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND   | DATE     | APPLICATION NO. | DATE       |
|------------------------|--|----------|-----------------|------------|
| US 2004122132          | A1   | 20040624 | US 2002-324855  | 20021220   |
| US 6913829             | B2   | 20050705 |                 |            |
| WO 2004058873          | A1   | 20040715 | WO 2003-US41138 | 20031222   |
| W:                     | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW |          |                 |            |
| RW:                    | BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG   |          |                 |            |
| AU 2003297510          | A1   | 20040722 | AU 2003-297510  | 20031222   |
| PRIORITY APPLN. INFO.: |  |          | US 2002-324855  | A 20021220 |
|                        |  |          | WO 2003-US41138 | W 20031222 |

AB A polymer nucleating agent is composed of alumina-coated silica particles having a surface coating of benzoic acid. Thus, 2250 g a silica sol with mean size 85 nm and 107 g 50% aluminum chlorohydrate were mixed and stirred, 167 g IR 67 an ion exchange resin was added therein and heated at 85°, 107 g 50% an aluminum chlorohydrate solution was added therein and stirred for 10 min, 167 g the ion exchange resin was added therein and heated at 85° to give alumina-coated silica with mean particle size 110 nm, 2000 g of which was added into a mixture of 84 g benzoic acid and 84 g sodium benzoate at 95° and stirred, and spray-dried to give benzoic acid-treated aluminum-coated silica, 10% of the resulting nucleating agent was mixed with 90% Profax 6523, kneaded, extruded, blended with Profax 6523, and injection molded to give a test piece (nucleating agent concentration 0.50%) with haze 21% and flexural modulus 190,000.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:77525 CAPLUS

DOCUMENT NUMBER: 138:110942

TITLE: Oxide-based sol-gel ceramic matrix composites with superior high temperature properties

INVENTOR(S): Dichiaro, Robert A.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 5 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE       |
|--|------|----------|-----------------|------------|
| US 2003022783  | A1   | 20030130 | US 2001-918158  | 20010730   |
| EP 1281697   | A1   | 20030205 | EP 2002-77758   | 20020708   |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK  |      |          |                 |            |
| US 2005218565  | A1   | 20051006 | US 2005-134876  | 20050523   |
| PRIORITY APPLN. INFO.:   |      |          | US 2001-918158  | A 20010730 |
| AB Oxide based ceramic matrix composites (CMC) having superior properties at high temps. exhibit a sol gel matrix with mixed or blended metal oxide particles. The sol-gel matrix is an aqueous colloidal suspension of a metal oxide, preferably from about 10 weight % to about 25 weight % of the metal oxide, and preferably containing a metal oxide such as alumina (Al <sub>2</sub> O <sub>3</sub> ), silica (SiO <sub>2</sub> ) or alumina-coated silica. The mixture is then infiltrated into a ceramic fabric, gelled, dried and sintered to form the CMC. Methods for making the CMC are also provided. |      |          |                 |            |

L5 ANSWER 9 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:183801 CAPLUS

DOCUMENT NUMBER: 136:233053

TITLE: Raw material dispersion for the manufacture of polyester, process for the preparation thereof, and process for the preparation of polyester products using the dispersion

INVENTOR(S): Mangold, Helmut; Ochiai, Mitsuru

PATENT ASSIGNEE(S): Degussa AG, Germany

SOURCE: Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE       |
|---|------|----------|-----------------|------------|
| EP 1186628  | A2   | 20020313 | EP 2001-117426  | 20010719   |
| EP 1186628  | A3   | 20030521 |                 |            |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO   |      |          |                 |            |
| JP 2002080573   | A    | 20020319 | JP 2000-268662  | 20000905   |
| PRIORITY APPLN. INFO.:  |      |          | JP 2000-268662  | A 20000905 |
| AB Raw material dispersion for the manufacture of polyester, wherein 1 to 60 parts by weight of silica powder with an average particle size of 5 to 50 nm with surface layer doped with Al <sub>2</sub> O <sub>3</sub> are uniformly dispersed in glycols based on 100 parts by weight of the glycols. The raw material dispersion for the manufacture of polymers is mixed with terephthalic acid or di-Me terephthalate and subjected to esterification under pressure at a temperature of 200 to 300°C to produce a polyester polymer. In case of that polyester fiber or polyester film is produced from the polyester polymer, the particle size of a silica powder agglomerate contained in said polyester fiber or polyester film is less than 5 µm. |      |          |                 |            |

L5 ANSWER 10 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:113212 CAPLUS

DOCUMENT NUMBER: 136:136045

TITLE: Chloroprene polymer latex compositions with good light resistance and water-thinned adhesives

INVENTOR(S): Sunada, Kiyoshi; Yamaguchi, Mikio

PATENT ASSIGNEE(S): Denki Kagaku Kogyo Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 2002047377          | A    | 20020212 | JP 2000-232745  | 20000801 |
| PRIORITY APPLN. INFO.: |      |          | JP 2000-232745  | 20000801 |

AB The compns. contain chloroprene polymers, silica scales, and metal oxide microparticles. Thus, a latex containing 100 parts ALX 600 (chloroprene latex) and 6.25 parts aqueous dispersion containing Sunlovely TZ 824 (silica scale coated with TiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub>) and Poiz 530 (dispersant) showed yellowness index 14 and 50 before and after light exposure for 4 h.

L5 ANSWER 11 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:829656 CAPLUS

DOCUMENT NUMBER: 136:103822

TITLE: Aggregation and photophysics of rose bengal in alumina-coated colloidal suspensions

AUTHOR(S): Daraio, Marta E.; San Roman, Enrique

CORPORATE SOURCE: INQUIMAE/Departamento de Quimica Inorganica, Analitica y Quimica Fisica, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Laboratorio de Quimica de Sistemas Heterogeneos, Departamento de Quimica, Facultad de Ingenieria, Buenos Aires, 1428, Argent.

SOURCE: Helvetica Chimica Acta (2001), 84(9), 2601-2614

CODEN: HCACAV; ISSN: 0018-019X

PUBLISHER: Verlag Helvetica Chimica Acta

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The absorption and emission properties of Rose Bengal (RB) have been studied in colloidal suspensions of pos. charged alumina-coated silica nanoparticles (Sil). Exptl. spectra can be rationalized by the existence of an equilibrium between aqueous monomers and only one adsorbed species. However, a simple partition or a Langmuir-type adsorption-aggregation equilibrium do not explain the observed results. No evidence regarding the existence of adsorbed monomers is found even at low surface coverage. Aggregation stops at the dimer level, though, at high enough dye concns., the surface coverage is almost complete. Comparative expts. performed on neg. charged silica nanoparticles show that monomers are the only species present in this case. Fluorescence expts. on Sil indicate that dimers are fluorescent. Laser excitation of adsorbed dye leads to the formation of RB radical cations, while the dye triplet state is not observed

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 12 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:802727 CAPLUS

DOCUMENT NUMBER: 136:138929

TITLE: Plasma-facilitated SCR of NO<sub>x</sub> in heavy-duty diesel exhaust

AUTHOR(S): Rappe, K. G.; Aardahl, C. L.; Habeger, C. F.; Tran, D. N.; Delgado, M. A.; Wang, L.-Q.; Park, P. W.; Balmer, M. L.

CORPORATE SOURCE: Pacific Northwest National Laboratory, Richland, WA, 92352, USA

SOURCE: Society of Automotive Engineers, [Special Publication] SP (2001), SP-1639(Non-Thermal Plasma Emission Control Systems), 105-110

CODEN: SAESA2; ISSN: 0099-5908  
PUBLISHER: Society of Automotive Engineers  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Two independent studies of  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> as a plasma-activated catalyst are discussed.  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> (2.5-4.3 weight percent) was coated onto the surface of meso-porous SiO<sub>2</sub> to determine the importance of Al surface coordination on NO<sub>x</sub> conversion in conjunction with non-thermal plasma. Results indicated the presence of 5- and 6-fold Al coordination sites in  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> could be a significant factor in the NO<sub>x</sub> reduction process. A second study examined the effect of changing the reducing agent on NO<sub>x</sub> conversion. Several hydrocarbons were examined: propene, propane, isooctane, methanol, and acetaldehyde. It was demonstrated that methanol was the most effective reducing agent of those tested for a plasma-facilitated reaction over  $\gamma$ -Al<sub>2</sub>O<sub>3</sub>.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 13 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:735003 CAPLUS

DOCUMENT NUMBER: 133:310846

TITLE: Dyeing color yield improving agents for fibers comprising aqueous mixtures of positively charged metal oxide particles, cationic acrylic polymers and silicone compounds

INVENTOR(S): Inaya, Shuichi; Ikeda, Reiko

PATENT ASSIGNEE(S): Kao Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| JP 2000290884 | A    | 20001017 | JP 1999-99292   | 19990406 |
| JP 3478758    | B2   | 20031215 |                 |          |

PRIORITY APPLN. INFO.: JP 1999-99292 19990406

AB The agents comprise pos. charged metal oxide (A) particles or silica particles or alumina-coated silica particles, cationic polymers (B) with refractive index  $\leq 1.50$  and glass transition temperature (T<sub>g</sub>)  $\leq 110^\circ$ , and silicone compds. (C), or the agents comprise 5-55% A, 5-80% B, and 15-85% C. Thus, 6 parts trimethylstearylammmonium chloride (Coatamine 86W, solids 28%) was copolymd. with iso-Bu methacrylate 4.4, Bu acrylate 15.2, and N-methylolacrylamide 0.4 part to give a cationic copolymer (I) with T<sub>g</sub>  $-22^\circ$  and refractive index 1.47. A black-dyed polyester fabric was immersed in an aqueous dispersion containing 2 parts 20% (solids, as Al<sub>2</sub>O<sub>3</sub>), 10 parts I, and 8 parts trimethylsilyl-terminated dimethylsilanediol-methyl[3-[(2-aminoethyl)aminopropyl]silanediol copolymer for 5 s, squeezed to pickup 100%, dried, and heat-treated 1 min at  $170^\circ$  to give a black fabric exhibiting color yield L value (spectroscopic photometric value) 10.12 and crocking fastness rating (5 best, 1 worst) 4.5 (dry) and 4.5 (wet).

L5 ANSWER 14 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:637813 CAPLUS

DOCUMENT NUMBER: 133:355700

TITLE: Fractal Heteroaggregation of Oppositely Charged Colloids

AUTHOR(S): Kim, Anthony Y.; Berg, John C.

CORPORATE SOURCE: Department of Chemical Engineering, University of Washington, Seattle, WA, 98195, USA

SOURCE: Journal of Colloid and Interface Science (2000),  
229(2), 607-614  
CODEN: JCISA5; ISSN: 0021-9797

PUBLISHER: Academic Press

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Floc structures resulting from selective heteroaggregation of pos. and neg. charged colloids are studied as a function of number ratio and shear conditions at pH 6. Neg. charged SiO<sub>2</sub> and pos. charged alumina-coated SiO<sub>2</sub> undergo rapid aggregation due to attractive electrostatic interactions. At either extreme in number ratio, growth is terminated at an early stage, presumably because the aggregates acquire the same sign of charge, eliminating the driving force for further aggregation. For intermediate number ratios, extensive growth occurs, since the distribution of pos. and neg. charges is more uniform. Structure evolution of large heteroaggregates is assessed by static light scattering. Shear strongly influences the packing geometry and the tendency for the aggregates to undergo restructuring. At high shear (NRe>2000), heteroaggregates show relatively dense packing and do not restructure. Fractal dimension D<sub>f</sub> decreases from 2.64 to 2.26 as the number of pos. particles is increased. At low shear (NRe<200), packing of the particles is more open and restructuring occurs. The lowest observed fractal dimension is 1.79. In the absence of applied shear, heteroaggregates with D<sub>f</sub> = 1.79 rearrange to more compact structures with D<sub>f</sub> = 1.88. (c) 2000 Academic Press.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 15 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:614149 CAPLUS

DOCUMENT NUMBER: 129:220054

TITLE: Alumina-coated silica  
filler powder and high-expansion glass ceramics using  
it for IC packaging

INVENTOR(S): Hikata, Hajime; Yamanaka, Toshiro

PATENT ASSIGNEE(S): Nippon Electric Glass Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|-------------|------|----------|-----------------|----------|
| JP 10251042 | A    | 19980922 | JP 1997-74600   | 19970310 |
|             |      |          | JP 1997-74600   | 19970310 |

PRIORITY APPLN. INFO.:  
AB The filler powder is crystal SiO<sub>2</sub> (e.g., cristobalite) particles coated with Al<sub>2</sub>O<sub>3</sub>-based ceramics. The glass ceramics consist of glass powder 20-90, SiO<sub>2</sub> filler powder 10-80, and refractory filler powder 0-40 weight%. The SiO<sub>2</sub> filler powder has high thermal expansion coefficient and a high-strength ceramic coating. The glass ceramics, having high thermal expansion coefficient, can be used for sealing materials and substrates of elec. circuits using Cu leads.

L5 ANSWER 16 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:711095 CAPLUS

DOCUMENT NUMBER: 128:93535

TITLE: A comparison of the interaction forces between model alumina surfaces and their colloidal properties

AUTHOR(S): Karaman, M. E.; Pashley, R. M.; Waite, T. D.; Hatch, S. J.; Bustamante, H.

CORPORATE SOURCE: Department of Chemistry, The Faculties, The Australian National University, Canberra, ACT, 0200, Australia

SOURCE: Colloids and Surfaces, A: Physicochemical and

Engineering Aspects (1997), 129,130, 239-255  
CODEN: CPEAEH; ISSN: 0927-7757

PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Previous work has demonstrated that alumina dispersions are only destabilized by monovalent electrolytes such as KCl at concns. <0.1M over a wide pH range. This unusual stability has been qual. attributed to a repulsive hydration force that operates at distances <5nm. Intermol. forces, measured between an aluminum coated colloidal silica sphere and a flat alumina substrate, carried out using an atomic force microscope demonstrates that the addnl. repulsion is due to short range forces not expected in DLVO theory. The origin of these forces is postulated to be due to a combination of surface gel formation, probably due to polymeric Al species, and the natural hydration of the surface. The gel layer thickness determined at pH 8 was at least 15nm. At pH  $\leq 7$  (i.e.  $\leq$ isoelec. point) the forces obtained conformed to DLVO behavior. down to separation distances of ca 3-5 nm, at smaller sepns. an addnl. repulsive force was detected. A thin gel-layer may be formed even at lower pH values which would contribute to this short range repulsion. These results may partially explain the difficulty encountered in dewatering aluminum hydroxide rich sludges generated during water treatment.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 17 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:436076 CAPLUS

DOCUMENT NUMBER: 127:52302

TITLE: Antifogging coatings based on silica particles coated with a metal oxide

INVENTOR(S): Huang, Tzu-li J.

PATENT ASSIGNEE(S): Minnesota Mining and Manufacturing Company, USA

SOURCE: PCT Int. Appl., 33 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND   | DATE     | APPLICATION NO. | DATE       |
|------------------------|--|----------|-----------------|------------|
| WO 9717413             | A1   | 19970515 | WO 1996-US15670 | 19960930   |
| W:                     | AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN |          |                 |            |
| RW:                    | KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG   |          |                 |            |
| CA 2234959             | A1   | 19970515 | CA 1996-2234959 | 19960930   |
| AU 9673810             | A  | 19970529 | AU 1996-73810   | 19960930   |
| AU 709064              | B2   | 19990819 |                 |            |
| EP 859820              | A1   | 19980826 | EP 1996-936072  | 19960930   |
| EP 859820              | B1   | 20020313 |                 |            |
| R:                     | AT, DE, DK, ES, FR, GB, IT, NL, SE   |          |                 |            |
| CN 1201479             | A  | 19981209 | CN 1996-198151  | 19960930   |
| JP 2000500171          | T  | 20000111 | JP 1997-518167  | 19960930   |
| JP 3811741             | B2   | 20060823 |                 |            |
| AT 214420              | T  | 20020315 | AT 1996-936072  | 19960930   |
| ES 2170279             | T3   | 20020801 | ES 1996-936072  | 19960930   |
| PRIORITY APPLN. INFO.: |  |          | US 1995-556064  | A 19951109 |
|                        |  |          | WO 1996-US15670 | W 19960930 |

AB A antifogging coating is based on silica particles coated with a metal

oxide and optionally contains a polymer binder. The metal may be aluminum, gallium, germanium, tin, indium, arsenic, antimony or vanadium. The coating exhibits durability such that  $\geq 35\%$  of the absorbance of the SiO stretching at 1108 cm<sup>-1</sup> remains after soaking for 3 days in water at 160°F and that the static contact angle of water droplets on the coating is <20°. The antifogging coating may be applied to a plastic retroreflective sheeting a traffic sign. A typical composition contained water 942, NH<sub>4</sub><sup>+</sup>-stabilized silica dispersion 50, NaAlO<sub>2</sub> 4,  $\gamma$ -glycidyloxypropyltrimethoxysilane 2, and K perfluoroalkylsulfonate 6 g.

L5 ANSWER 18 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:420552 CAPLUS  
DOCUMENT NUMBER: 127:112938  
TITLE: A new approach for modeling potential effects in cation adsorption onto binary (hydr)oxides  
AUTHOR(S): Luetzenkirchen, J.; Behra, Ph.  
CORPORATE SOURCE: Institut de Mecanique des Fluides de l'Universite Louis Pasteur, URA CNRS 854, 2 rue Boussingault, 67000, Strasbourg, Fr.  
SOURCE: Journal of Contaminant Hydrology (1997), 26(1-4), 257-268  
CODEN: JCOHE6; ISSN: 0169-7722  
PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The current approach for modeling ion adsorption onto binary (hydr)oxides using homogeneous surface complexation models involves the assumption of either an ideal mixture of the two surfaces (i.e. two surface sites on one surface) or a patchwise surface (i.e. two surfaces with one surface site on each surface). As the phys. truth should be between these two limiting cases, a model which assumes a patchwise surface constituted of three patches is proposed. Two patches represent the distinct (hydr)oxides, and the third one a mixture of these distinct (hydr)oxides. Using the diffuse layer model, the three approaches are applied to literature data for Cd adsorption onto binary mixts. of alumina-coated silica at total constant Cd concentration and varying amts. of alumina coatings. For Cd adsorption onto these binary (hydr)oxide systems, the new approach explains the observed potential effects. The proposed model, which contains two addnl. adjustable parameters in terms of site concns. or one adjustable parameter in terms of sp. surface area, is more successful than the two limiting cases. The new model is then validated by predicting Ca and Zn behavior on the same binary (hydr)oxide system.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 19 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:208135 CAPLUS  
DOCUMENT NUMBER: 126:296650  
TITLE: Silica- and iron oxide-containing  $\alpha$ -alumina-based abrasive grains  
INVENTOR(S): Monroe, Larry D.; Wood, Thomas E.  
PATENT ASSIGNEE(S): Minnesota Mining and Manufacturing Co., USA  
SOURCE: U.S., 22 pp., Cont.-in-part of U.S. Ser. No. 492,898, abandoned.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 3  
PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|------------|------|----------|-----------------|----------|
| US 5611829 | A    | 19970318 | US 1996-670890  | 19960626 |



PRIORITY APPLN. INFO.:

US 1995-492898

B2 19950620

AB  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>-based ceramic abrasive grains comprising, on theor. oxide basis, Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, and .gtorsim.0.25 weight% Fe<sub>2</sub>O<sub>3</sub>, and containing  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> crystallites having average size .ltorsim.0.5  $\mu$ m, have surface roughness height .gtorsim.200 nm and d. .gtorsim.3.5 g/cm<sup>3</sup>. Alternatively, the  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>-based ceramic abrasive grain comprise, on theor. oxide basis, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, and .gtorsim.0.05 weight% alkali metal oxide. The abrasive articles comprise a binder, and multiple abrasive grains. The presence of SiO<sub>2</sub>, in combination with Fe<sub>2</sub>O<sub>3</sub> increases the amount of transgranular fracture of the abrasive grains, reduces  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> crystallite growth during sintering, dilates  $\geq 1$  of the unit cell dimensions of the grains, and generally improves grinding performance of the grains.

L5 ANSWER 20 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1996:167912 CAPLUS

DOCUMENT NUMBER: 124:217911

TITLE: Polishing compound for fabrication of semiconductor device

INVENTOR(S): Sato, Junichi

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE       |
|-------------|------|----------|-----------------|------------|
| JP 08008218 | A    | 19960112 | JP 1994-320714  | 19941222   |
|             |      |          | JP 1994-320714  | A 19941222 |
|             |      |          | JP 1994-82937   | 19940421   |

AB A polishing compound for chemical mech. polishing of semiconductor IC device comprises an alumina-coated silica particles.

L5 ANSWER 21 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:710174 CAPLUS

DOCUMENT NUMBER: 123:90941

TITLE: Scattering characteristics of fibrous media containing closely spaced parallel fibers

AUTHOR(S): Lee, Siu-Chun; Grzesik, Jan A.

CORPORATE SOURCE: Applied Sci. Lab. Inc., Hacienda Heights, CA, 91745, USA

SOURCE: Journal of Thermophysics and Heat Transfer (1995), 9(3), 403-9

CODEN: JTHTEO; ISSN: 0887-8722

PUBLISHER: American Institute of Aeronautics and Astronautics

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The theor. formulation for scattering by a semi-infinite medium containing closely spaced, parallel fibers at oblique incidence is presented. The fibers can be either coated or uncoated, and their diams. are comparable to the wavelength of the incident radiation and spacing between the fibers. The radiative propagation characteristics, which include the propagation constant and amplitude of the effective wave in the medium, are derived by a rigorous solution of Maxwell's relations by accounting for the multiple dependent scattering effects. Formulas are also developed for the coherent and incoherent scattered intensities. Numerical results are presented to illustrate the scattering behavior of dense fibrous media containing alumina-coated silica fibers and Rayleigh limit silica fibers.

L5 ANSWER 22 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:566708 CAPLUS  
DOCUMENT NUMBER: 121:166708  
TITLE: Reductive Quenching of Novel Mixed-Ligand  
Tris(bipyridyl)ruthenium(II) Complexes in Aqueous  
Solution and Inert Colloidal Suspensions  
AUTHOR(S): Kelly, Lisa A.; Rodgers, Michael A. J.  
CORPORATE SOURCE: Center for Photochemical Sciences, Bowling Green State  
University, Bowling Green, OH, 43403, USA  
SOURCE: Journal of Physical Chemistry (1994), 98(25), 6377-85  
CODEN: JPCHAX; ISSN: 0022-3654  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The reductive quenching of the lowest energy electronically excited state of four mixed-ligand tris(bipyridyl)ruthenium(II) complexes by anionic ascorbate and N-phenylglycine electron donors was investigated in aqueous solution at pH  $\geq$  5.0. The central ruthenium(II) metal atom is coordinated to either two 2,2'-bipyridine (bpy) or two 4,4'-dicarboxy-2,2'-bipyridine (dcbpy) ligands to render the complexes a net 2+ ([Ru(bpy)<sub>2</sub>(L)]<sup>2+</sup>) or 2- ([Ru(dcbpy)<sub>2</sub>(L)]<sup>2-</sup>) charge. Reductive quenching was found to proceed with a larger bimol. rate constant ( $k_q = 1.2-7.4 \times 10^8 \text{ M}^{-1} \text{ s}^{-1}$ ) than that previously measured for the quenching of the parent Ru(bpy)<sub>3</sub><sup>2+</sup> by ascorbate. Moderate yields ( $\phi_{ce} = 0.20-0.40$ ) of the reduced metal complex were formed in the process. The reductive quenching of the dianionic complexes in homogeneous solution was compared with that in suspensions (pH 5.0) of inert colloidal alumina-coated silica particles, where both the anionic donor and the chromophore are coadsorbed to the cationic particles. The apparent bimol. rate consts. were found to be enhanced by more than 1 order of magnitude in these colloidal systems, with a concomitant decrease in the yield of redox products escaping from the solvent cage.

L5 ANSWER 23 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:521524 CAPLUS  
DOCUMENT NUMBER: 121:121524  
TITLE: Photoreduction of Methyl Viologen Mediated by  
Tris(bipyridyl)ruthenium(II) in Inert Colloidal  
Suspensions  
AUTHOR(S): Kelly, Lisa A.; Rodgers, Michael A. J.  
CORPORATE SOURCE: Center for Photochemical Sciences, Bowling Green State  
University, Bowling Green, OH, 43403, USA  
SOURCE: Journal of Physical Chemistry (1994), 98(25), 6386-91  
CODEN: JPCHAX; ISSN: 0022-3654  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The photoredn. of Me viologen, covalently attached to a tris(bipyridyl)ruthenium(II) chromophore, in suspensions of pos. charged alumina-coated colloidal silica particles, via N-phenylglycine electron donor, is reported. In the tris(bipyridyl)ruthenium(II) complexes, the central metal atom is coordinated to two 4,4'-dicarboxy-2,2'-bipyridine ligands and thus carries a net 2- charge at pH 5.0. Coadsorption of the N-phenylglycine and ruthenium chromophore to the colloidal particles results in rapid production of reduced viologen following visible laser flash excitation of the tris(bipyridyl)ruthenium(II) complex. The yield of the radical was dependent upon the concentration of the electron donor added to the system, but its multiphasic decay was independent of both the N-phenylglycine concentration and the initial concentration of the viologen radical cation. Furthermore, both the yield and decay kinetics of the viologen radical cation were relatively independent of the number of intervening methylene units between the ruthenium complex and viologen electron acceptor. The results represent a significant improvement in charge separation yield over those previously reported for the reductive quenching of the

carboxylated tris(bipyridyl)ruthenium(II) complex, absent of the covalently attached viologen, by N-phenylglycine in alumina-coated silica colloidal suspensions.

L5 ANSWER 24 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:496126 CAPLUS  
DOCUMENT NUMBER: 117:96126  
TITLE: Alumina-graphite-based immersion nozzles for continuous steel casting  
INVENTOR(S): Sasai, Katsuhiro; Mizukami, Yoshimasa  
PATENT ASSIGNEE(S): Nippon Steel Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|-------------|------|----------|-----------------|----------|
| JP 04127944 | A    | 19920428 | JP 1990-246315  | 19900918 |
|             |      |          | JP 1990-246315  | 19900918 |

PRIORITY APPLN. INFO.:  
AB The title nozzles contain 5-50 weight% (as SiO<sub>2</sub>) Al<sub>2</sub>O<sub>3</sub>-coated SiO<sub>2</sub>. The nozzles have increased service life and corrosion and spalling resistance.

L5 ANSWER 25 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:411324 CAPLUS  
DOCUMENT NUMBER: 117:11324  
TITLE: Electroviscous fluids  
INVENTOR(S): Fukuyama, Yoshiki; Ishino, Yuichi; Saito, Tasuku  
PATENT ASSIGNEE(S): Bridgestone Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|-------------|------|----------|-----------------|----------|
| JP 04028794 | A    | 19920131 | JP 1990-132540  | 19900524 |
|             |      |          | JP 1990-132540  | 19900524 |

PRIORITY APPLN. INFO.:  
AB The fluids comprise 40-99 weight parts of an elec.-insulating oil (viscosity 0.65-1000 cSt at room temperature) and 1-60 weight parts of amorphous aluminosilicate particles having average particle size 0.01-100 µm, Si/Al atomic ratio 8-1000 and moisture content 1-10 weight%, which are prepared from alumina-coated silica soluble

L5 ANSWER 26 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:197479 CAPLUS  
DOCUMENT NUMBER: 116:197479  
TITLE: Preparation of FCC catalyst composition  
INVENTOR(S): Culross, Claude C.; Stuntz, Gordon F.; Winter, William E., Jr.  
PATENT ASSIGNEE(S): Exxon Research and Engineering Co., USA  
SOURCE: U.S., 10 pp. Cont.-in-part of U.S. Ser. No. 288,829, abandoned.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

AB A FCC catalyst composite comprising an alumina-on-silica additive, an inorg. refractory oxide, and optionally a zeolite material is prepared by coating silica particles with an aluminum compound capable of being thermally converted to an alumina surface phase, treating the coated silica material in a heat soak at 90-300° for an effective amount of time and calcining the alumina-coated silica material at 300-1000°.

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| US 5076939  | A    | 19911231 | US 1991-694694  | 19910502 |
| CA 2058406  | A1   | 19921103 | CA 1991-2058406 | 19911223 |
| EP 512665   | A1   | 19921111 | EP 1992-300292  | 19920114 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, PT, SE |      |          |                 |          |
| JP 05253574   | A    | 19931005 | JP 1992-6486    | 19920117 |
| JP 06065396   | B    | 19940824 | JP 1993-694694  | 19910502 |

L5 ANSWER 28 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1992:162273 CAPLUS  
DOCUMENT NUMBER: 116:162273  
TITLE: Photochemistry on surfaces. Excited state behavior of  
ruthenium tris(bathophenanthroline disulfonate) on  
colloidal alumina-coated  
silica particles  
AUTHOR(S): Kamat, Prashant V.; Ford, William E.  
CORPORATE SOURCE: Radiat. Lab., Univ. Notre Dame, Notre Dame, IN, 46556,  
USA  
SOURCE: Photochemistry and Photobiology (1992), 55(2), 159-63  
CODEN: PHCBAP; ISSN: 0031-8655  
DOCUMENT TYPE: Journal  
LANGUAGE: English

LANGUAGE: English

AB The excited state behavior of an anionic Ru(II) complex, RuL34- (L = bathophenanthroline disulfonate), that is electrostatically bound to pos. charged alumina-coated silica particles is investigated. The apparent association constant for the binding of RuL34- to the particles is  $1.2 \times 10^4 \text{ M}^{-1}$ . Surface photochem. processes result in decreased emission yields and multiexponential excited state decay. Excited state quenching by ground-state mols. is evident at high surface coverages. The non-exponential decay kinetics observed at low surface coverages can be attributed either to clustering of the RuL34- mols. or

photoionization promoted by Lewis acid sites on the particle surface.

L5 ANSWER 29 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1989:505513 CAPLUS

DOCUMENT NUMBER: 111:105513

TITLE: Photochemistry on surfaces. 3. Spectral and photophysical properties of monomeric and dimeric anthracenesulfonates adsorbed by colloidal alumina-coated silica particles

AUTHOR(S): Ford, William E.; Kamat, Prashant V.

CORPORATE SOURCE: Radiat. Lab., Univ. Notre Dame, Notre Dame, IN, 46556, USA

SOURCE: Journal of Physical Chemistry (1989), 93(17), 6423-8  
CODEN: JPCHAX; ISSN: 0022-3654

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Anthracene-2-sulfonate (2AS) mols. dimerized upon adsorption from aqueous solution by pos. charged Al<sub>2</sub>O<sub>3</sub>-coated Si particles (25-nm diameter). This ground-state dimerization was accompanied by an intensification and red shift (from 370 to 401 nm) of the 0-0 absorption band and a large decrease in fluorescence quantum yield. Anthracene-1,5-disulfonate (1,5AS) and anthracene-1-sulfonate mols. was also adsorbed by the particles but did not dimerize. Triplet states of the adsorbed mols. were characterized by laser flash photolysis. Direct photoexcitation of the 2AS dimer failed to produce an observable triplet state, but photosensitization yielded a triplet state of the dimer resembling that of the monomer. The triplet state of the adsorbed 1,5AS mol. was obtained by either direct or sensitized excitation. Binding capacities of the particles for 2AS and 1,5AS indicated that at maximal coverage the 2AS mols. were tilted with respect to the surface while the 1,5AS mols. were coplanar. Dimerization of 2AS occurred even when fewer than 1% of available adsorption sites was occupied.

L5 ANSWER 30 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1989:104651 CAPLUS

DOCUMENT NUMBER: 110:104651

TITLE: Photochemistry on surfaces. 2. Intermolecular electron transfer on colloidal alumina-coated silica particles

AUTHOR(S): Kamat, Prashant V.; Ford, William E.

CORPORATE SOURCE: Radiat. Lab., Univ. Notre Dame, Notre Dame, IN, 46556, USA

SOURCE: Journal of Physical Chemistry (1989), 93(4), 1405-9  
CODEN: JPCHAX; ISSN: 0022-3654

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Reductive quenching of 2 photoexcited Ru(II) complexes by an anionic electron donor, 2,2'-azinobis(3-ethylbenzothiazoline-6-sulfonate) (ABTS<sup>2-</sup>), in aqueous solution was examined by laser flash photolysis before and after adding pos. charged colloidal (250-Å diameter) alumina-coated silica particles. The kinetics and quantum yields of electron transfer with an anionic sensitizer, RuL<sub>4</sub><sup>-</sup> (L = bathophenanthroline disulfonate), and a cationic one, Ru(bpy)<sub>3</sub><sup>2+</sup> (bpy = 2,2'-bipyridine), were compared. Coadsorption of ABTS<sup>2-</sup> and RuL<sub>4</sub><sup>-</sup> by the particles greatly enhanced the rate of quenching such that only the reaction occurring on the surfaces of the particles was observed. Electron transfer from ABTS<sup>2-</sup> to RuL<sub>4</sub><sup>-</sup> occurred by a static (nondiffusional) process, and the quenching efficiency was maximal when there was close to monolayer coverage of the reactants on the particles. Ru(bpy)<sub>3</sub><sup>2+</sup> was not adsorbed by the particles and served as a luminescent probe for the determination of the binding capacity of the particles for ABTS<sup>2-</sup>.

L5 ANSWER 31 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1984:440610 CAPLUS  
DOCUMENT NUMBER: 101:40610  
TITLE: Aluminum oxide-coated silica sols using  
ultrafiltration  
INVENTOR(S): Payne, Charles C.  
PATENT ASSIGNEE(S): Nalco Chemical Co. , USA  
SOURCE: U.S., 4 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|------------|------|----------|-----------------|----------|
| US 4451388 | A    | 19840529 | US 1981-317041  | 19811102 |
|            |      |          | US 1981-317041  | 19811102 |

PRIORITY APPLN. INFO.:

AB Alumina-coated silica sols having improved chemical and phys. characteristics are prepared by treating hydrophilic colloidal silica sols (e.g., Nalcoag 1034 A) with a trivalent acidic Al salt (e.g., chlorhydrol). A mixture of concentrated deionized silica sol and a concentrated solution of the Al salt is heated to >90° for 1-15 min to form an alumina reacted silica sol solution, the solution is cooled, diluted with deionized water to .apprx.10 weight% solids and the diluted silica sol solution is subjected to ultrafiltration through a membrane having a mol. weight cutoff of 30,000. The sol is washed with deionized water to remove dissolved salts. The diluted alumina-coated silica sol having a pH 4-5 and a conductivity 2000-4000  $\mu\Omega$  is concentrated to >30 weight% solids to obtain a stable soluble

L5 ANSWER 32 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1984:211960 CAPLUS  
DOCUMENT NUMBER: 100:211960  
TITLE: Silica-coated absorbent fibers  
INVENTOR(S): Weisman, Paul Thomas; Retzsch, Herbert Louis  
PATENT ASSIGNEE(S): Procter and Gamble Co., USA  
SOURCE: Eur. Pat. Appl., 27 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.                | KIND | DATE     | APPLICATION NO. | DATE       |
|---------------------------|------|----------|-----------------|------------|
| EP 95922                  | A1   | 19831207 | EP 1983-303098  | 19830531   |
| EP 95922                  | B1   | 19860903 |                 |            |
| R: BE, DE, FR, GB, IT, NL |      |          |                 |            |
| US 4469746                | A    | 19840904 | US 1982-383685  | 19820601   |
|                           |      |          | US 1982-383685  | A 19820601 |

PRIORITY APPLN. INFO.:

AB Treating thermoplastic or cellulosic fibers with pos. charged SiO<sub>2</sub> and crosslinkable, cationic polyelectrolytes gave absorbent webs with improved wicking. Thus, sulfite pulp was dispersed in aquasols of Al<sub>2</sub>O<sub>3</sub>-deposited colloidal silica (100 lb/ton pulp), formed into a web, and dried for 2 h at 65° to give a specimen with 2.52 mL/g min wicking rate and 4.5 mL/g adsorption capacity at 25 cm hydrostatic pressure.

L5 ANSWER 33 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1984:64508 CAPLUS  
DOCUMENT NUMBER: 100:64508  
TITLE: Clotting assay and reagent for this method

INVENTOR(S): Finnerty, Suja P.; Hangos, Russell A.  
 PATENT ASSIGNEE(S): Cooper Laboratories, Inc., USA  
 SOURCE: PCT Int. Appl., 15 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.                                | KIND | DATE     | APPLICATION NO. | DATE       |
|---|------|----------|-----------------|------------|
| WO 8304105                                | A1   | 19831124 | WO 1983-US645   | 19830504   |
| W: AU, DK, JP                             |      |          |                 |            |
| RW: AT, BE, CH, DE, FR, GB, LU, NL, SE    |      |          |                 |            |
| US 4455377                                | A    | 19840619 | US 1982-375936  | 19820507   |
| AU 8316053                                | A    | 19831202 | AU 1983-16053   | 19830504   |
| AU 547448                                 | B2   | 19851017 |                 |            |
| JP 59500736                               | T    | 19840426 | JP 1983-502015  | 19830504   |
| JP 04017389                               | B    | 19920325 |                 |            |
| EP 108131                                 | A1   | 19840516 | EP 1983-901990  | 19830504   |
| EP 108131                                 | B1   | 19871021 |                 |            |
| R: AT, BE, CH, DE, FR, GB, LI, LU, NL, SE |      |          |                 |            |
| AT 30358                                  | T    | 19871115 | AT 1983-901990  | 19830504   |
| CA 1192823                                | A1   | 19850903 | CA 1983-427554  | 19830505   |
| ES 522158                                 | A1   | 19841201 | ES 1983-522158  | 19830506   |
| DK 8305967                                | A    | 19831223 | DK 1983-5967    | 19831223   |
| DK 160904                                 | B    | 19910429 |                 |            |
| DK 160904                                 | C    | 19911014 |                 |            |
| ES 535986                                 | A1   | 19851016 | ES 1984-535986  | 19840917   |
| PRIORITY APPLN. INFO.:                    |      |          |                 |            |
|   |      |          | US 1982-375936  | A 19820507 |
|   |      |          | EP 1983-901990  | A 19830504 |
|   |      |          | WO 1983-US645   | A 19830504 |

AB An improved activated thromboplastin time test (APTT) is described which uses colloidal silica or alumina-coated silica particles (diameter 4-100 mμ) as Hageman factor activators. The particles are prepared by contacting an alkali silicate solution with ion-exchange material for removing alkali metal ions from the silicate solution and recovering the colloiddally dispersed particles from the ion-exchange material. In 1 example, a reagent was prepared containing colloidal silica, cephalin (for platelet factor-like activity), buffer, and antimicrobial agent. An APTT was preformed with the reagent, plasma, and CaCl<sub>2</sub> with satisfactory reproducibility.

L5 ANSWER 34 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1983:603567 CAPLUS  
 DOCUMENT NUMBER: 99:203567  
 TITLE: Electrostatographic developers  
 PATENT ASSIGNEE(S): Canon K. K., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| JP 57158656   | A    | 19820930 | JP 1981-43434   | 19810325 |
|   |      |          | JP 1981-43434   | 19810325 |
| PRIORITY APPLN. INFO.:  |      |          |                 |          |
| AB Al <sub>2</sub> O <sub>3</sub> -coated silica particles are coated on electrostatog. toner particles by using organic Si compds. to give pos.-chargable toners. Thus, toner particles composed of polystyrene and carbon black were mixed with Ludox AM (an alumina-coated silica, from du Pont) in H <sub>2</sub> O, then α-aminopropyltriethoxysilane was added to the |      |          |                 |          |

dispersion, and the dispersion was filtered to give coated toner particles.

L5 ANSWER 35 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1983:118117 CAPLUS  
DOCUMENT NUMBER: 98:118117  
TITLE: Sputtering apparatus with corrosion resistant discharge tube  
PATENT ASSIGNEE(S): Toshiba Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 57192266            | A    | 19821126 | JP 1981-74216   | 19810519 |
| PRIORITY APPLN. INFO.: |      |          | JP 1981-74216   | 19810519 |

AB The sputtering apparatus is characterized by a corrosion resistant discharge tube which consists of SiO<sub>2</sub> or hard glasses covered by Al<sub>2</sub>O<sub>3</sub>. Thus, a discharge tube made from SiO<sub>2</sub> covered with Al<sub>2</sub>O<sub>3</sub> did not show any damage after 3500 h sputtering in 1.0 torr CF<sub>4</sub> at 2450 MHz and 500 W.

L5 ANSWER 36 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1983:44174 CAPLUS  
DOCUMENT NUMBER: 98:44174  
TITLE: Electrostatographic developers  
PATENT ASSIGNEE(S): Canon K. K., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 57079951            | A    | 19820519 | JP 1980-156320  | 19801106 |
| PRIORITY APPLN. INFO.: |      |          | JP 1980-156320  | 19801106 |

AB Electrostatog. developers are described which contain alumina-coated silica or silicate salt particles. Thus, Hi-sil 233 was dispersed in H<sub>2</sub>O, then AlCl<sub>3</sub> was added to the dispersion, the pH of the dispersion was adjusted to 8 with NH<sub>4</sub>OH, and the dispersion was then dried to give alumina-coated silica particles. The particles were then mixed (1.0 weight %) with a toner composed of Piccolastic D-150, carbon black, and Methylene Blue chloride to give an electrophotog. developer.

L5 ANSWER 37 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1983:9986 CAPLUS  
DOCUMENT NUMBER: 98:9986  
TITLE: Electrophotographic development method  
PATENT ASSIGNEE(S): Canon K. K., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|



JP 57079963                      A              19820519              JP 1980-156322              19801106  
PRIORITY APPLN. INFO.:                      JP 1980-156322              19801106  
AB    An electrophotog development method is claimed which uses a developer  
containing elec. insulating toners and alumina-coated  
silica or silicate powder. Thus, Hi-Sil coated with alumina was  
added (1 weight%) to a toner composed of Piccalstic D-150, carbon black,  
Methylene Blue chloride, and magnetite to give an electrophotog.  
developer.

L5 ANSWER 38 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1981:626269 CAPLUS  
DOCUMENT NUMBER: 95:226269  
TITLE: Silicon and aluminum hydrous oxide sols: 1. Studies  
on the colloid chemistry of alumina-  
coated silica sols. 2.  
Precipitation and characterization of colloidal  
aluminum hydrous oxide sols  
AUTHOR(S): Katsanis, Eleftherios Panagiotis  
CORPORATE SOURCE: Clarkson Coll. Technol., Potsdam, NY, USA  
SOURCE: (1981) 243 pp. Avail.: Univ. Microfilms Int., Order  
No. 8121418  
From: Diss. Abstr. Int. B 1981, 42(4), 1473  
DOCUMENT TYPE: Dissertation  
LANGUAGE: English  
AB Unavailable

L5 ANSWER 39 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1981:624393 CAPLUS  
DOCUMENT NUMBER: 95:224393  
TITLE: Heat-resistant material  
PATENT ASSIGNEE(S): Nissan Chemical Industries, Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|-------------|------|----------|-----------------|----------|
| -----       | ---  | ----     | -----           | -----    |
| JP 56096766 | A    | 19810805 | JP 1979-173510  | 19791227 |
| JP 62027021 | B    | 19870611 | JP 1979-173510  | 19791227 |

PRIORITY APPLN. INFO.: JP 62027021 B 19870011 JP 1979-173510 A 19791227  
AB Al<sub>2</sub>O<sub>3</sub>-coated SiO<sub>2</sub> sol is mixed with inorg. fiber at pH 5-7.5 and dried.  
Thus, 150 g Al<sub>2</sub>O<sub>3</sub>-coated SiO<sub>2</sub> sol was mixed with water 150 and SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>  
ceramic fiber 15 g at pH 6.8, shaped, and dried to obtain a plate-shaped  
heat-resistant material having tensile strength 0.337 kg/cm<sup>2</sup> and modulus  
of elasticity 5.58 kg/cm<sup>2</sup>.

L5 ANSWER 40 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1981:198080 CAPLUS  
DOCUMENT NUMBER: 94:198080  
TITLE: Synthesis of inorganic multilayers on chromatographic supports  
AUTHOR(S): Wickramanayake, Palitha P.; Chatt, Amares; Aue, Walter A.  
CORPORATE SOURCE: Trace Anal. Res. Cent., Dalhousie Univ., Halifax, NS, B3H 4J3, Can.  
SOURCE: Canadian Journal of Chemistry (1981), 59(7), 1045-50  
CODEN: CJCHAG; ISSN: 0008-4042  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Multilayers of various metal oxides were produced on typical chromatog. supports such as diatomaceous earth and silica gel. The layer thickness

was characterized for phases based on Fe and Cr. These data, as well as chromatog. evidence obtained on chromium oxide, suggest that the layers are homogeneous. Similar, but less well characterized layers of aluminum and titanium oxides were obtained.

L5 ANSWER 41 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1975:587839 CAPLUS  
DOCUMENT NUMBER: 83:187839  
TITLE: Determination of low oxygen activities by electromotive force measurement  
AUTHOR(S): Kreyger, Pieter J.; Slangen, Bob; Den Hartog, Huib W.  
CORPORATE SOURCE: Process Technol. Dep., Hoogovens IJmuiden B. V., IJmuiden, Neth.  
SOURCE: Stahl und Eisen (1975), 95(9), 393-8  
CODEN: STEIA3; ISSN: 0340-4803  
DOCUMENT TYPE: Journal  
LANGUAGE: German

AB The polarization of the electrochem. O cell by O enrichment or depletion of the boundary layer between the electrolyte surface and a molten steel sample caused relatively large errors in the determination of <50 ppm O in steel.

To eliminate the polarization effects caused by parasitic O sources, the cell was improved by the following methods: selection of an electrolyte geometry providing a small surface to be exposed to the molten steel and a relatively large electrolyte wall thickness; use of a reference electrode with a O potential of the same order of magnitude as that in the steel melt; and coating oxide portions of the probe not inert to the steel melt, e.g. SiO<sub>2</sub>, with a stable oxide layer, e.g. Al<sub>2</sub>O<sub>3</sub> or ZrO<sub>2</sub>. The improved probe can be used to determine Al directly in killed steel. The exptl. observed relation between dissolved Al and O in Al-killed steel at 1600° was compared with the thermodyn. equilibrium

L5 ANSWER 42 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1975:581064 CAPLUS  
DOCUMENT NUMBER: 83:181064  
TITLE: Fabric for carpet and like materials containing a coating of colloidal silica with a layer of alumina  
INVENTOR(S): Payne, Charles C.; Bloemke, Richard E.; Schaefer, David P.  
PATENT ASSIGNEE(S): Nalco Chemical Co., USA  
SOURCE: U.S., 5 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE       |
|------------|------|----------|-----------------|------------|
| US 3901992 | A    | 19750826 | US 1973-411549  | 19731031   |
|            |      |          | US 1973-411549  | A 19731031 |

PRIORITY APPLN. INFO.:

AB Antistatic and antisoil properties are imparted to bulk pile carpets, draperies, and upholstery materials by the application of 1-4% alumina [1344-28-1]-coated silica [7631-86-9]. For example, an alumina-coated aquasol was prepared by treating an acid silica sol produced through double deionization with Al<sub>2</sub>(OH)<sub>5</sub>Cl in the presence of an anion exchange resin. A nylon cloth, dipped in the alumina-coated silica sol (pH 5) to a 3.2% silica add-on and dried, dissipated static charges rapidly (half-life time, 1 sec) and showed antisoil values comparable to fabrics treated with quaternary ammonium-coated silica.

L5 ANSWER 43 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1974:18272 CAPLUS

DOCUMENT NUMBER: 80:18272  
 TITLE: Evaporated silver-coated with double layers of aluminum(III) oxide and silicon oxide to produce surface films with low solar absorptivity and high thermal emissivity  
 AUTHOR(S): Hass, G.; Heaney, J. B.; Triolo, J. J.  
 CORPORATE SOURCE: Night Vision Lab., U. S. Army Electron. Command, Fort Belvoir, VA, USA  
 SOURCE: Optics Communications (1973), 8(3), 183-5  
 CODEN: OPCOB8; ISSN: 0030-4018  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A technique is described for using evaporated Ag coated with double layers of Al<sub>2</sub>O<sub>3</sub> and Si oxide to produce surface films having low solar absorptivity ( $\alpha$ ) and high total normal and hemispherical emissivities ( $\epsilon_N$  and  $\epsilon$ ). Value of  $\alpha$  for the Ag+Al<sub>2</sub>O<sub>3</sub>+ Si oxide film combination was  $<0.07$  and  $\alpha/\epsilon \geq 0.1$ . The surface films were extremely stable during simulated solar uv radiation.

L5 ANSWER 44 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1973:470550 CAPLUS  
 DOCUMENT NUMBER: 79:70550  
 TITLE: Stable, positively charged, alumina-coated silica sols  
 INVENTOR(S): Moore, Earl P., Jr.  
 PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.  
 SOURCE: U.S., 3 pp. Continuation-in-part of U.S. 3,620,978 (CA 76;47900c).  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE        |
|------------|------|----------|-----------------|-------------|
| US 3745126 | A    | 19730710 | US 1971-136577  | 19710422    |
| US 3620978 | A    | 19711116 | US 1968-745715  | 19680718    |
|            |      |          | US 1968-745715  | A2 19680718 |

PRIORITY APPLN. INFO.:

AB Improved pos. charged coated SiO<sub>2</sub> particles were prepared by reacting H<sub>3</sub>BO<sub>3</sub>-stabilized basic Al acetate with a SiO<sub>2</sub> soluble. The stability of aquasols of pos. charged colloidal SiO<sub>2</sub> coated with Al dispersed in a solution containing acetate or formate counterions is improved when the Al is present as a borate-pos. charged Al complex. The preferred compound is Al(OH)<sub>2</sub>(CH<sub>3</sub>CO<sub>2</sub>).1/3H<sub>3</sub>BO<sub>3</sub>. The H<sub>3</sub>BO<sub>3</sub>-stabilized sols of the invention are useful as frictionizing agents for paper products.

L5 ANSWER 45 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1972:77130 CAPLUS  
 DOCUMENT NUMBER: 76:77130  
 TITLE: Alumina-coated silica catalyst material  
 INVENTOR(S): Lindsley, John F.; Sanborn, William E.  
 PATENT ASSIGNEE(S): American Cyanamid Co.  
 SOURCE: U.S., 4 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|------------|------|----------|-----------------|----------|
| US 3629152 | A    | 19711221 | US 1967-672442  | 19671003 |

PRIORITY APPLN. INFO.:

US 1967-672442

A 19671003

AB An aqueous Al salt solution is added to SiO<sub>2</sub> hydrogel and homogenized prior to precipitation of Al<sub>2</sub>O<sub>3</sub>. The Al<sub>2</sub>O<sub>3</sub>-coated SiO<sub>2</sub> hydrogel is dried to rigid solid containing a maximum 50 weight % H<sub>2</sub>O. The materials produced are suitable for use in the preparation of cracking and hydrocracking catalysts.

L5 ANSWER 46 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1972:47900 CAPLUS

DOCUMENT NUMBER: 76:47900

TITLE: Preparing stable, positively charged, alumina-coated silica particles from silica sols

INVENTOR(S): Moore, Earl P., Jr.

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.

SOURCE: U.S., 3 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE        |
|------------|------|----------|-----------------|-------------|
| US 3620978 | A    | 19711116 | US 1968-745715  | 19680718    |
| US 3745126 | A    | 19730710 | US 1971-136577  | 19710422    |
|            |      |          | US 1968-745715  | A2 19680718 |

PRIORITY APPLN. INFO.:

AB Positively charged alumina-coated silica particles are prepared from a silica sol by mixing the silica sol with a boric acid stabilized basic Al acetate or formate at pH 4.2-5. The silica is deionized before mixing with the Al compound

L5 ANSWER 47 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1970:492014 CAPLUS

DOCUMENT NUMBER: 73:92014

TITLE: Catalysts from alumina-coated silica-alumina hydrogel

INVENTOR(S): Colgan, Joseph D.

PATENT ASSIGNEE(S): American Cyanamid Co.

SOURCE: U.S., 6 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE       |
|-------------|------|----------|-----------------|------------|
| US 3519574  | A    | 19700707 | US 1967-652019  | 19670710   |
| GB 1213913  | A    | 19701125 | GB 1968-1213913 | 19680611   |
| SE 354790   | B    | 19730326 | SE 1968-8959    | 19680628   |
| FR 95717    | E    | 19710604 | FR 1968-95717   | 19680705   |
| BE 717815   | A    | 19690109 | BE 1968-717815  | 19680709   |
| NL 6809748  | A    | 19690114 | NL 1968-9748    | 19680710   |
| JP 54019230 | B    | 19790713 | JP 1968-48410   | 19680710   |
|             |      |          | US 1967-652019  | A 19670710 |

PRIORITY APPLN. INFO.:

AB A petroleum fraction with a b.p. range of .apprx.300-950°F is added to a slurry of inorg. oxide hydrogel to form an oil-in-water emulsion which is mech. sheared to eliminate the fluidizing effect of the H<sub>2</sub>O. After extrusion, the catalyst is dried and calcined. Thus, a filter cake containing 0.038% Na<sub>2</sub>O and 0.44% SO<sub>4</sub> on a dry basis was slurried with H<sub>2</sub>O to decrease solids level to 5.95% and pH to 7.7. A solution of 2.32 parts of Ni nitrate hexahydrate, 0.483 part of ammonium metatungstate, and 0.92 part of ammonium fluoride in 58 parts of water was added to 168 parts of the 5.95% slurry. The blend was mixed for 2 hr, filtered, and washed with

21/2 displacements of water. A portion of the recovered filter cake was reslurried at 6.9% solids. This slurry was formed into extrudates by pumping it through a homogenizing valve of a Mantin-Gaulin homogenizer at 3000 psi and thence through nozzles, each with a 0.152 in. diameter orifice. The extrudates were collected, dried at 150°F, and calcined in a muffle furnace at 1100°F.

L5 ANSWER 48 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1970:418151 CAPLUS  
DOCUMENT NUMBER: 73:18151  
TITLE: Refractory casting slurry using alumina-coated silica sol binder and hexamethylenetetramine as setting agent  
INVENTOR(S): Moore, Earl Phillip, Jr.  
PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.  
SOURCE: U.S., 3 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE       |
|------------------------|------|----------|-----------------|------------|
| US 3507944             | A    | 19700421 | US 1968-758612  | 19680909   |
| PRIORITY APPLN. INFO.: |      |          | US 1968-758612  | A 19680909 |

AB Previous aqueous refractory slurries, when poured into a mold, were set (1) by absorption of water into a porous mold requiring 24-48 hr; (2) by chemical setting. The latter method often resulted in too slow setting or too fast setting with resulting short pot life. An improved aqueous refractory slurry provides a long pot life as well a fast setting. The slurry comprises finely divided Al<sub>2</sub>O<sub>3</sub>, zircon, mullite or mica; a binder of pos. charged Al-coated Si sol, as described in U.S. 3,007,878, 3,139,406 and 3,252,917 having a pH of 3-6 and 10-50% solids; and enough hexamethylenetetramine (I) to raise the pH above 6 when fully activated. The mixture including I should have a pH of 5.4-5.7. Thus, a slurry was prepared consisting of -325 mullite 14.5; -325 Al<sub>2</sub>O<sub>3</sub> 20.0; -28 + 100 Al<sub>2</sub>O<sub>3</sub> 10; -14 + 28 Al<sub>2</sub>O<sub>3</sub> 15; -8 + 14 Al<sub>2</sub>O<sub>3</sub> 29; binder 9.0; water 2.4 and I 0.08 weight %. The mixture, pH 5.65, had a pot life of 2 hr at 25°. When poured into a mold heated to 60° the slurry set in 12 min.

L5 ANSWER 49 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1970:59617 CAPLUS  
DOCUMENT NUMBER: 72:59617  
TITLE: Dehydration of ethyl alcohol on alumina-coated silica  
AUTHOR(S): Fahim, R. B.  
CORPORATE SOURCE: Dep. Chem., Univ. Assiut, Assiut, Egypt  
SOURCE: Journal of Applied Chemistry (1969), 19(12), 356-8  
CODEN: JACHAU; ISSN: 0021-8871  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Catalysts were prepared by precipitation of Al hydroxide on a wet silica gel. The

dehydration of EtOH on catalysts varying in alumina content was studied at 307° using a flow system. The products of dehydration were ethylene, ether and water. The kinetics of the formation of ethylene followed the Langmuir-Hinshelwood mechanism, while the formation of ether occurred according to the Langmuir-Hinshelwood mechanism and the Rideal-Eley mechanism simultaneously. The catalytic activity was controlled by the amount of Al on the surface. The rate consts. were correlated with the surface nature of the catalysts.

L5 ANSWER 50 OF 50 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1966:416351 CAPLUS  
 DOCUMENT NUMBER: 65:16351  
 ORIGINAL REFERENCE NO.: 65:3046h,3047a-b  
 TITLE: Alumina-coated silica  
 sol  
 INVENTOR(S): Mindick, Morris; Thompson, Arthur C.  
 PATENT ASSIGNEE(S): Nalco Chemical Co.  
 SOURCE: 8 pp.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|------------|------|----------|-----------------|----------|
| US 3252917 |      | 19660524 | US 1962-219725  | 19620827 |

AB Stable aluminacoated silica sol is prepared by treating acid, salt-free, silica sols with basic Al halides, then bringing the coated sol in a single step into contact with a H2O insol. anion exchange resin, to give a silica sol of pH 4.5-6.5. Thus, 110 gal. of a com. available 35% silica sol was deionized by passage through a 6 in. diameter column containing 25 in. of a strong base anion exchange resin at the bottom of the column and 25 in. of a strong acid cation exchange resin. The flow rate was 0.75 gal./min. The effluent had a pH of 2.1 and a conductance of 650 micromhos. After standing overnight, the material was passed through the column again. Its pH was 3.10 with a conductance of 395 micromhos. A 243-ml. portion of the salt-free acid silica sol was added to 64 ml. of a 50% solution of Al<sub>2</sub>(OH)5Cl, giving a viscous clear sol of pH 3.5 which was heated slowly to 180°F. over a period of one hour. The sol was diluted with 50 ml. H2O and was brought into contact with 98 g. of an anionic resin exchanger for 30 min. The final alumina-coated silica sol had a density of 1.135, a pH of 5.5, a sp. conductance of 3200, a solids concentration of 19%, and an Al<sub>2</sub>O<sub>3</sub>/SiO<sub>2</sub> ratio of 0.2.